



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,183	02/01/2001	C.A. Subramanian	7416/78248 - PPA 1	7098
24628	7590	12/07/2004	EXAMINER	
WELSH & KATZ, LTD 120 S RIVERSIDE PLAZA 22ND FLOOR CHICAGO, IL 60606			DEPPE, BETSY LEE	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/775,183

Applicant(s)

SUBRAMANIAN ET AL.

Examiner

Betsy L. Deppe

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on September 7, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 42 and 43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because in Figure 2, "Intital" in step 102 and "Extra" in step 106 are misspelled. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means for allocating recited in claim 29, lines 11-26 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities:
  - on page 1, line 17, "and" should be inserted after "allocated to each carrier");
  - on page 9, line 7, "S" is not defined; and
  - on page 9, line 21, "till" should be "until."Appropriate correction is required.

***Claim Objections***

4. The claims are objected to because of the following informalities:
- a. in claim 1, line 4, “the transmit power” should be “the known transmit power” (see claim 1, line 3);
  - b. in claim 1, line 6, “the bit error rate” should be “a bit error rate”;
  - c. in claim 2, line 1, “allocating total excess power” should be “allocating at least a portion of the total excess power” in order to be consistent with claim 1, line 11;
  - d. in claim 3, line 3, “and excess power” should be deleted since this is not part of step d in claim 1;
  - e. in claim 6, line 8, “a reduced” should be “the reduced”;
  - f. in claim 7, line 1, “a reduced” should be “the reduced”;
  - g. in claim 15, line 4, “the transmit power” should be “the known transmit power” (see claim 1, line 3);
  - h. in claim 15, line 6, “the bit error rate” should be “a bit error rate”;
  - i. in claim 16, line 1, “allocating total excess power” should be “allocating at least a portion of the total excess power”;
  - j. in claim 20, line 8, “a reduced” should be “the reduced”;
  - k. in claim 21, line 1, “a reduced” should be “the reduced”;
  - l. in claim 22, line 2, “calculated” should be “computed” (see claim 20, lines 3 and 7);

m. in claim 29, line 9, “the scaled encoder” should be “the scaled **encoded parallel data streams**”;

n. in claims 31 and 33, “allocating total excess power further comprises allocating a portion of excess power” on lines 1-2 should be “allocating **at least a portion of the** total excess power further comprises **means for** allocating a portion of **the total** excess power”; and

o. in claim 34, line 8, “a reduced” should be “**the** reduced.”

Appropriate correction is required.

5. The applicant is reminded to cancel claims 42 and 43 since they are non-elected claims.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. With regard to claims 1-41, it is unclear in lines 6-7 of claims 1 and 15 and claim 29, lines 16-17, respectively, how the estimated signal to noise ratio relates to the bit error rate or target bit error rate. Claims 2-14, 16-18 and 30-41, as dependent claims of claims 1, 15 and 29, respectively, are rejected under the same grounds.

9. Claim 24 recites the limitation "the step of computing gains" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 15 does not include this step. Furthermore, the "computing excess power" step in claim 24, lines 2-3 is already recited in claim 15, step d

10. Claims 11, 25 and 36 recite the limitation "the smallest cardinality." There is insufficient antecedent basis for this limitation in the respective claims. Furthermore, it is unclear what is meant by "a set of carriers out of the plurality of carriers having the smallest cardinality."

11. In claim 32, it is unclear how the "means for computing additional power" on lines 1-2 differs from the "means for computing excess power" on line 3.

12. In claims 40 and 41, it is unclear what is meant by "repeats" on line 2 of the respective claims. What is repeated by the "means for allocating"?

#### ***Allowable Subject Matter***

13. Claims 1-41 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

14. The following is a statement of reasons for the indication of allowable subject matter: prior art of record does not teach or suggests in combination a method of transmitting data comprised of steps (a)-(e) as recited in claims 1 and 15, respectively. Furthermore, prior art of record does not teach or suggests in combination a transmission system comprised of a means for allocating bit rate for parallel data

Art Unit: 2637

streams and for allocation power for the means for scaling as recited in claim 29, lines 11-26.

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references teach methods and/or systems for bit and/or power allocation in multicarrier communication systems: Chow et al. (US Patent No. 5,479,447), Hyll (US Patent No. 6,005,893), Shively et al. (US Patent No. 6,144,696), Levin et al. (US Patent No. 6,259,746 B1) and Mantra (US Patent No. 6,732,281 B1)


16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsy L. Deppe whose telephone number is (571) 272-3054. The examiner can normally be reached on Monday, Wednesday and Thursday (8:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272 - 2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Art Unit: 2637

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Betsy L. Deppe  
Primary Examiner  
Art Unit 2637